

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

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# PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing  
(day/month/year)

15-06-2005

Applicant's or agent's file reference

OP100940

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/FI2005/000086

International filing date (day/month/year)

10.02.2005

Priority date (day/month/year)

12.02.2004

International Patent Classification (IPC) or both national classification and IPC

A61B 5/11, G01S 11/14

Applicant

Newtest Oy et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further opinions, see Form PCT/ISA/220.

12.12.05 PW OK

3. For further details, see notes to Form PCT/ISA/220.

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Box No. I      Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language, \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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Box No. II Priority

1. ☒ The following document has not yet been furnished:

☒ copy of the earlier application whose priority has been claimed (Rules 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rules 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-22	YES
	Claims	---	NO
Inventive step (IS)	Claims	---	YES
	Claims	1-22	NO
Industrial applicability (IA)	Claims	---	YES
	Claims	1-22	NO

2. Citations and explanations:

The invention concerns a method and arrangement for measuring the length of steps and solves the problems related to prior art methods, e.g. accuracy and rigidity.

The aim/object of the invention is to provide a method and a device arrangement, by which the step length of a person can be measured without manual measurements, calculations and saving of data by a simple device arrangement.

Cited documents

D1. US5831937 | X  
D2. US5583776 |  
D3. US20020107649 |  
D4. WO03055389 | A  
D5. US20040113805 |

D3-D5 represent prior art of the invention.

Document D1 is considered to represent the closest prior art. D1 describes a portable ranging system for analyzing gait, comprising a transponder having an infrared receiver and an ultrasound emitter, a base unit having an infrared emitter and an ultrasound receiver, and a computer terminal.

Upon actuation, the circuitry begins counting (i.e. the moment of transmission) and simultaneously causes the infrared emitter to emit infrared light into a ranging area. The infrared receiver receives the infrared light, and in response, emits an ultrasound pulse. The ultrasound pulse is next received by the ultrasound receiver, which in turn causes the system circuitry to stop counting (i.e. the time

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V.

1(2)

of reception). The circuitry then can use the count data to calculate the time of flight of the ultrasound pulse and thus the distance between the ultrasound emitter and the ultrasound receiver, see column 3 lines 12 to 37. Hence, starting and stopping the count is equivalent to synchronising clocks, as both solutions enable measuring transit time between the moving person and a fixed point.

Furthermore, the circuitry computes a plurality of gait parameters for the walking subject, e.g. velocity and acceleration. The number of steps and the step length can then be determined using the zero crossing in the instantaneous acceleration array, see figure 13 and column 10 line 60 to column 11 line 35.

The invention according to claim 1 differs from the method in D1 in that an accelerometer transducer is used to determine the number of steps. Hence, the method claimed in claim 1-22 is novel.

Due to these features no additional features are achieved, as the accelerometer transducer provides information which is already present in D1.

Consequently, with the background of D1, the problem is to provide an alternative method for measuring acceleration, in order to calculate the number of steps taken.

A solution to this problem is known e.g. known from document D2, which describes a navigational system using an accelerometer to provide acceleration data indicative of footsteps, see column 3 lines 12-36.

Thus, the person skilled in the art, having the device known from D1 as a starting point, aiming to solve the identified problem, would with the knowledge of D2 use an accelerometer to measure foot impacts, and thus arrive at the invention according to claim 1. Since D1 and D2 both relate to the same technical field and no unexpected effect is obtained, the combination of what is known from D1 and D2 is considered obvious for a person skilled in the art.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V.

2 (2)

Therefore, the subject-matter defined in claim 1 does not involve an inventive step. The same discussion is valid for the apparatuses of claims 8, 16 and 19.

The remaining claims are considered to involve particular detail executions obvious to a person skilled in the art. Therefore, the invention according to these claims is not considered to involve an inventive step.

The invention is industrially applicable.